

This listing of claims will replace all prior versions of claims in the application:

Listing of Claims: Please amend the claims as follows:

We claim:

Claim 1. (Withdrawn) A polynucleotide whose sequence is set forth in SEQ ID NO 1, SEQ ID NO 3 or SEQ ID NO 5.

Claim 2. (Withdrawn) The polynucleotide according to Claim 1, commencing with position 70, which encodes for a polypeptide having the properties of the major allergen Phl p 4 from *Phleum pratense*.

Claim 3. (Withdrawn) A polynucleotide comprising a nucleotide sequence which encodes for the major allergen Phl p 4 from *Phleum pratense*.

Claim 4. (Withdrawn) A DNA molecule which hybridizes with the polynucleotide sequence according to claim 1 under stringent conditions and originates from DNA sequences of *Poaceae* species.

Claim 5. (Withdrawn) A DNA molecule which encodes for a polypeptide which cross-reacts immunologically with the major allergen Phl p 4 from *Phleum pratense* and originates from DNA sequences of *Poaceae* species.

Claim 6. (Withdrawn) A DNA molecule corresponding to a partial sequence or a combination of partial sequences according to claim 1 which encodes for an immunomodulatory, T-cell-reactive fragment of a group 4 *Poaceae* allergen.

Claim 7. (Withdrawn) The DNA molecule according to Claim 6, which encodes for a Phl p 4 fragment which is

- (a) fragment 1-200, with amino acids 1-200 of Phl p 4, or
- (b) fragment 185-500, with amino acids 185-500 of Phl p 4.

Claim 8. (Withdrawn) The polynucleotide sequence according to claim 1, which encodes for an immunomodulatory T-cell-reactive fragment, wherein said nucleotide sequence has been

specifically modified by specific mutation of individual codons, elimination or addition.

Claim 9. (Withdrawn) The polynucleotide according to Claim 8, wherein said mutation results in the replacement of one, more or all cysteines of the corresponding polypeptide with another amino acid.

Claim 10. (Withdrawn) A recombinant DNA expression vector or a cloning system comprising the polynucleotide according to claim 1, functionally linked to an expression control sequence.

Claim 11. (Withdrawn) A transformed host organism which expresses the polypeptide according to claim 13.

Claim 12. (Withdrawn) A process for the preparation of a polypeptide of claim 13 comprising culturing a host organism which expresses said polypeptide and isolating the corresponding polypeptide from the culture.

Claim 13. (Currently Amended) A polypeptide which is

- (a) a polypeptide which comprises the polypeptide sequence set forth in SEQ ID NO: 2, SEQ ID NO: 4 or SEQ ID NO: 6;
- (b) a polypeptide comprising a polypeptide sequence which is encoded by the polynucleotide sequence set forth in SEQ ID NO: 1, SEQ ID NO: 3 or SEQ ID NO: 5, or
- (c) a polypeptide variant of the sequence set forth in SEQ ID NO: 2 with the amino acid variations set forth in clones 1 to 11, wherein
 - (a) clone 1 comprises L54, I57, V62, S76, T100, N107, Y137, P141, T142, K189, Q219, K221, L227, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, S384, A410, D419, Y456, A457, K460, and E472;
 - (b) clone 2 comprises L54, I57, V62, T76, T100, N107, Y137, P141, T142, K189, Q219, K221, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, S384, A410, D419, Y456, A457, K460, and E472;
 - (c) clone 3 comprises P141, K282, L287, P299, L347, and E351;
 - (d) clone 4 comprises G289, A410, D419, Y456, A457, K460, and E472;
 - (e) clone 5 comprises L347, E351, S384, A410, D419, Y456, A457, K460, and E472;

- (f) clone 6 comprises N107, Y137, P141, T142, K189, Q219, K221, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, S384, A410, D419, Y456, A457, and K460;
- (g) clone 7 comprises K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, and S384;
- (h) clone 8 comprises Q219, K221, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, and E351;
- (i) clone 9 comprises M231, T246, A251, C263, G289, L307, L309, and E334;
- (j) clone 10 comprises Q219, K221, I231, S235, T237, M238, V242, V246, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, N358, V362, S384, insertion of GA between positions 407 and 408, N452, Y456, A457, K460, and E472;
- (k) clone 11 comprises insertion of GA between positions 407 and 408.

Claim 14. (Cancelled)

Claim 15. (Previously Presented) A pharmaceutical composition comprising at least one polypeptide according to Claim 13 and a pharmaceutically acceptable carrier.

Claim 16. (Withdrawn) A method for the diagnosis and/or treatment of an allergic condition which is triggered by group 4 allergens of the *Poaceae* and/or for the prevention of said allergic condition in a subject in need thereof comprising administering to said subject an effective amount of a polypeptide of claim 13.

Claim 17. (Cancelled)

Claim 18. (Cancelled)

Claim 19. (Cancelled)

Claim 20. (Previously Presented) An immunotherapeutic vaccine comprising a polypeptide of claim 13 and an acceptable carrier, wherein said vaccine is capable of generating an immunomodulatory, T-cell response in a host.

Claim 21. (Currently Amended) An immunomodulatory, T-cell-reactive polypeptide fragment which comprises a partial sequence of 50 to 350 amino acids of the polypeptide sequence set forth in

SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6 or a polypeptide variant of the sequence set forth in SEQ ID NO: 2 with the amino acid variations set forth in clones 1 to 11, wherein

- (1) clone 1 comprises L54, I57, V62, S76, T100, N107, Y137, P141, T142, K189, Q219, K221, L227, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, S384, A410, D419, Y456, A457, K460, and E472;
- (2) clone 2 comprises L54, I57, V62, T76, T100, N107, Y137, P141, T142, K189, Q219, K221, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, S384, A410, D419, Y456, A457, K460, and E472;
- (3) clone 3 comprises P141, K282, L287, P299, L347, and E351;
- (4) clone 4 comprises G289, A410, D419, Y456, A457, K460, and E472;
- (5) clone 5 comprises L347, E351, S384, A410, D419, Y456, A457, K460, and E472;
- (6) clone 6 comprises N107, Y137, P141, T142, K189, Q219, K221, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, S384, A410, D419, Y456, A457, and K460;
- (7) clone 7 comprises K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, S384, and S384;
- (8) clone 8 comprises Q219, K221, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, and E351;
- (9) clone 9 comprises M231, T246, A251, C263, G289, L307, L309, and E334;
- (10) clone 10 comprises Q219, K221, I231, S235, T237, M238, V242, V246, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, N358, V362, S384, insertion of GA between positions 407 and 408, N452, Y456, A457, K460, and E472;
- (11) clone 11 comprises insertion of GA between positions 407 and 408.

Claim 22. (Currently Amended) An polypeptide fragment which comprises

(a) amino acids 1-200 of the polypeptide sequence set forth in SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6 or a polypeptide variant of the sequence set forth in SEQ ID NO: 2 with the amino acid variations set forth in clones 1 to 11, wherein

- (1) clone 1 comprises L54, I57, V62, S76, T100, N107, Y137, P141, T142, K189, Q219, K221, L227, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299,

A321, L322, S332, Q346, P347, T351, L357, N358, V362, S384, A410, D419, Y456, A457, K460, and E472;

(2) clone 2 comprises L54, I57, V62, T76, T100, N107, Y137, P141, T142, K189, Q219, K221, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, S384, A410, D419, Y456, A457, K460, and E472;

(3) clone 3 comprises P141, K282, L287, P299, L347, and E351;

(4) clone 4 comprises G289, A410, D419, Y456, A457, K460, and E472;

(5) clone 5 comprises L347, E351, S384, A410, D419, Y456, A457, K460, and E472;

(6) clone 6 comprises N107, Y137, P141, T142, K189, Q219, K221, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, S384, A410, D419, Y456, A457, and K460;

(7) clone 7 comprises K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, and S384;

(8) clone 8 comprises Q219, K221, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, and E351;

(9) clone 9 comprises M231, T246, A251, C263, G289, L307, L309, and E334;

(10) clone 10 comprises Q219, K221, I231, S235, T237, M238, V242, V246, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, N358, V362, S384, insertion of GA between positions 407 and 408, N452, Y456, A457, K460, and E472;

(11) clone 11 comprises insertion of GA between positions 407 and 408;[[5]] or

(b) amino acids 185-500 of the polypeptide sequence set forth in SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6 or a polypeptide variant of the sequence set forth in SEQ ID NO: 2 with the amino acid variations set forth in clones 1 to 11, wherein

(1) clone 1 comprises L54, I57, V62, S76, T100, N107, Y137, P141, T142, K189, Q219, K221, L227, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, S384, A410, D419, Y456, A457, K460, and E472;

(2) clone 2 comprises L54, I57, V62, T76, T100, N107, Y137, P141, T142, K189, Q219, K221, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, S384, A410, D419, Y456, A457, K460, and E472;

(3) clone 3 comprises P141, K282, L287, P299, L347, and E351;

- (4) clone 4 comprises G289, A410, D419, Y456, A457, K460, and E472;
- (5) clone 5 comprises L347, E351, S384, A410, D419, Y456, A457, K460, and E472;
- (6) clone 6 comprises N107, Y137, P141, T142, K189, Q219, K221, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, A321, L322, 5332, Q346, P347, T351, L357, N358, V362, S384, A410, D419, Y456, A457, and K460;
- (7) clone 7 comprises K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, L357, N358, V362, and S384;
- (8) clone 8 comprises Q219, K221, I231, S235, T237, V238, K248, A258, I264, K270, K282, L287, P299, and E351;
- (9) clone 9 comprises M231, T246, A251, C263, G289, L307, L309, and E334;
- (10) clone 10 comprises Q219, K221, I231, S235, T237, M238, V242, V246, K248, A258, I264, K270, K282, L287, P299, A321, L322, S332, Q346, P347, T351, N358, V362, S384, insertion of GA between positions 407 and 408, N452, Y456, A457, K460, and E472;
- (11) clone 11 comprises insertion of GA between positions 407 and 408.

Claim 23. (Cancelled)

Claim 24. (Cancelled)

Claim 25. (Previously Presented) The immunotherapeutic vaccine according to claim 20 which is capable of generating a hypoallergenic action in a host.

Claim 26. (Previously Presented) A polypeptide according to claim 13 wherein each of the polypeptides of (a) to (e) is immunogenic and induces an immunomodulatory T-cell reactive response in a host.

Claim 27. (Previously Presented) An immunotherapeutic vaccine comprising a polypeptide of claim 21 and an acceptable carrier, wherein said vaccine is capable of generating an immunomodulatory, T-cell response in a host.

Claim 28. (Previously Presented) An immunotherapeutic vaccine comprising a polypeptide of claim 22 and an acceptable carrier, wherein said vaccine is capable of generating an immunomodulatory, T-cell response in a host.

Claim 29. (Previously Presented) An immunotherapeutic vaccine comprising a polypeptide of claim 23 and an acceptable carrier, wherein said vaccine is capable of generating an immunomodulatory, T-cell response in a host.

Claim 30. (Previously Presented) A pharmaceutical composition comprising at least one polypeptide according to claim 21 and a pharmaceutically acceptable carrier.

Claim 31. (Previously Presented) A pharmaceutical composition comprising at least one polypeptide according to claim 22 and a pharmaceutically acceptable carrier.

Claim 32. (Previously Presented) A pharmaceutical composition comprising at least one polypeptide according to claim 23 and a pharmaceutically acceptable carrier.

Claim 33. (Previously Presented) A polypeptide which comprises

- (a) a polypeptide which is encoded by a single nucleotide polymorph of a polynucleotide whose sequence is set forth in SEQ ID NO: 1, or
- (b) a single amino acid polymorph of a polypeptide whose sequence is set forth in SEQ ID NO: 2.

Claim 34. (Cancelled)

Claim 35. (Previously Presented) The polypeptide according to claim 13, which is a recombinant polypeptide.

Claim 36. (Previously Presented) The polypeptide according to claim 13, which is an isolated polypeptide.